CLAIMS

What is claimed is:

1.   A pixel-data selection device to provide motion compensation, comprising:

a storage unit to store a current frame/field including first pixel-data corresponding to at least one of candidate motion vectors as inputted, and a previous frame/field including second pixel-data corresponding to the at least one of the candidate motion vectors;

a pixel-data extraction unit to extract the first and the second pixel-data which respectively correspond to the at least one of candidate motion vectors, respectively, from the storage unit; and

a compensation pixel calculation unit to calculate first and second compensation pixel-data, respectively, for motion compensation, by adaptively applying a predetermined first weight according to the first and the second pixel-data,

wherein the calculated first and second compensation pixel-data are used for the motion compensation of a current block to be interpolated.

2.   The pixel-data selection device of claim 1, wherein the pixel-data extraction unit extracts the first and the second zero pixel-data corresponding to a block having the candidate motion vector of zero, respectively, from the storage unit, and the extracted first and second zero pixel-data are used for the motion compensation of the current block.

3.   The pixel-data selection device of claim 1, wherein the compensation pixel calculation unit respectively multiplies at least one of the first and the second pixel-data by the first weights which are adaptively applied to at least one of the first and the second pixel-data, and adds the results of the multiplication to obtain the first and the second compensation pixel-data, respectively.

4.   The pixel-data selection device of claim 1, wherein the sum total of the first weights applied to at least one of the first and the second pixel-data is 1.

5.   The pixel-data selection device of claim 1, wherein the candidate motion vector comprises the motion vector of the current block in the current frame/field and motion vector of at least one peripheral block adjacent to the current block.

6. The pixel-data selection device of claim 5, wherein at least one of the candidate motion vectors is a vector estimated from a position corresponding to the minimum value, among a plurality of motion prediction errors calculated by applying a block matching algorithm with respect to the current block and the respective peripheral blocks.

7. The pixel-data selection device of claim 6, wherein the first weight, which is applied to at least one of the first and the second pixel-data, is inversely proportional to the motion prediction error calculated by the current block and the peripheral blocks.

8. The pixel-data selection device of claim 6, wherein the motion prediction error is calculated by a sum of absolute difference (SAD) or a mean absolute difference (MAD).

9. The pixel-data selection device of claim 1, further comprising:
a first delay device to delay an inputted frame/field for a predetermined time period, and to supply the delayed current frame/field to the storage unit; and
a second delay device to delay the current frame/field inputted from the first delay device, for a predetermined time period, and to supply the delayed previous frame/field to the storage unit.

10. The pixel-data selection device of claim 1, wherein the pixel-data extraction unit extracts at least one of the first and the second pixel-data by estimating motion trajectories by at least one of the candidate motion vectors.

11. The pixel-data selection device of claim 1, wherein the storage unit stores adjacent fields of the same property for the current frame/field and the previous frame/field, respectively.

12. The pixel-data selection device of claim 11, wherein the field of the same property is one of an odd field and an even field for the current frame/field and the previous frame/field, respectively.

13. The pixel-data selection device of claim 11, wherein the frame/field is inputted by a field unit.

14. The pixel-data selection device of claim 13, further comprising:

a first delay device to delay an inputted field for a predetermined time period, and to supply the delayed first field to the storage unit;

a second delay device to delay the first field inputted from the first delay device, for a predetermined time period, and to output the delayed second field; and

a third delay device to delay the second field inputted from the second delay device for a predetermined time period, and to supply the delayed third field to the storage unit,

wherein the first and the third fields are of the same property.

15. A method of pixel-data selection for motion compensation, comprising:

storing a current frame/field including at least one of first pixel-data corresponding to at least one of candidate motion vectors as inputted;

storing a previous frame/field including at least one of second pixel-data corresponding to the at least one of the candidate motion vectors;

extracting at least one of the first and the second pixel-data which respectively correspond to at least one of the candidate motion vectors, respectively, from the storing operations; and

calculating the first and the second compensation pixel-data, respectively, for motion compensation, by adaptively applying a predetermined first weight according to the first and the second pixel-data,

wherein the calculated first and second compensation pixel-data are used for the motion compensation of a current block to be interpolated.

16. The method of pixel-data selection of claim 15, wherein the first and the second pixel-data extracting operations extract the first and the second zero pixel-data corresponding to a block having the candidate motion vector of zero, respectively, from the storing operations , and the extracted first and second zero pixel-data are used for the motion compensation of the current block.

17. The method of pixel-data selection of claim 15, wherein the first and the second compensation pixel calculating operations multiply at least one of the first and the second pixel-data by the first weights, respectively, which are adaptively applied according to at least one of the first and the second pixel-data, respectively, and add the results of the multiplication to obtain the first and the second compensation pixel-data, respectively.

18.   The method of pixel-data selection of claim 15, wherein the sum total of the first weights applied to at least one of the first and the second pixel-data is 1.

19.   The method of pixel-data selection of claim 15, wherein the candidate motion vector comprises the motion vector of the current block in the current frame/field and motion vector of at least one peripheral block adjacent to the current block.

20.   The method of pixel-data selection of claim 19, wherein at least one of the candidate motion vectors is a vector estimated from a position corresponding to the minimum value among a plurality of motion prediction errors calculated by applying a block matching algorithm with respect to the current block and the respective peripheral blocks.

21.   The method of pixel-data selection of claim 20, wherein the first weight, which is applied to at least one of the first and the second pixel-data, is inversely proportional to the motion prediction error calculated by the current block and the peripheral blocks.

22.   The method of pixel-data selection of claim 21, wherein the motion prediction error is calculated by a sum of absolute difference (SAD) or a mean absolute difference (MAD).

23.   The method of pixel-data selection of claim 15, further comprising the operations of:
prior to the current frame/field storing operation, delaying an inputted frame/field for a predetermined time period, and outputting the delayed current frame/field; and
prior to the previous frame/field storing operation, delaying the current frame/field inputted from the first delay device, for a predetermined time period, and supplying the delayed previous frame/field.

24.   The method of pixel-data selection of claim 15, wherein the first and the second pixel-data extracting operations extract at least one of the first and the second pixel-data by estimating motion trajectories by at least one of the candidate motion vectors.

25.   A computer readable medium providing a method of pixel-data selection for motion compensation, wherein the method performs the operations including:

storing a current frame/field including at least one of first pixel-data corresponding to at least one of candidate motion vectors as inputted;

storing a previous frame/field including at least one of second pixel-data corresponding to the at least one of the candidate motion vectors;

extracting at least one of the first and the second pixel-data which respectively correspond to at least one of the candidate motion vectors, respectively, from the storing operations; and

calculating the first and the second compensation pixel-data, respectively, for motion compensation, by adaptively applying a predetermined first weight according to the first and the second pixel-data,

wherein the calculated first and second compensation pixel-data are used for the motion compensation of a current block to be interpolated.